CPP 程式設計題

命題者：Wen-Kai, Wang

題目名稱(中文/英文)：Combinations

主要測試觀念：

Basics		Functions	
■	C++ BASICS 1	□	SEPARATE COMPILATION AND NAMESPACES
□	FLOW OF CONTROL	□	STREAMS AND FILE I/O
□	FUNCTION BASICS	■	RECURSION
□	PARAMETERS AND OVERLOADING	□	INHERITANCE
□	ARRAYS	□	POLYMORPHISM AND VIRTUAL FUNCTIONS
□	STRUCTURES AND CLASSES	□	TEMPLATES
□	CONSTRUCTORS AND OTHER TOOLS	□	LINKED DATA STRUCTURES
□	OPERATOR OVERLOADING, FRIENDS,AND REFERENCES	□	EXCEPTION HANDLING
□	STRINGS	□	STANDARD TEMPLATE LIBRARY
□	POINTERS AND DYNAMIC ARRAYS	□	PATTERNS AND UML

題目說明：Please write a recursive function to enumerate all combinations of **C(n, r)**. Note that we will use the following code snippets to test your program:

```cpp
#define ELEMENTS_FOR_COMBINATION 5   //i.e., C(5,4)
#define DLEMENTS_FOR_CHOICE 4


int main(void)
{
    int *arrayPtr = new int[ELEMENTS_FOR_COMBINATION];


    //Get all elements for combination
    for (int i = 0; i < ELEMENTS_FOR_COMBINATION; ++i)
        arrayPtr[i] = i + 1;


    PrintCombination(arrayPtr, ELEMENTS_FOR_COMBINATION, DLEMENTS_FOR_CHOICE);


    if (arrayPtr != NULL)
        delete[] arrayPtr;


    return 0;
}
```

The function, PrintCombination(int *, int, int), is for print all the combination results on console by recursive

輸入說明：此題無輸入。
輸出說明：參考範例。

IO 範例 :

	Sample Input	Sample Output
第一組測資與輸出	input-main1.cpp	1 2 3 4 1 2 3 5 1 2 4 5 1 3 4 5 2 3 4 5
第二組	input-main2.cpp	output2.txt
第三組	input-main3.cpp	output3.txt

附屬資料：
☑解答程式：Combinations.cpp(檔名)
☑測試資料：input-main1.cpp, output1.txt, input-main2.cpp,output2.txt, input-main3.cpp, output3.txt

■ 易，僅需用到基礎程式設計語法與結構
□中，需用到多項程式設計語法與結構
□難，需用到多項程式結構或較為複雜之資料型態或結構

解題時間：30 分鐘。

其他註記：提交作業時，只須提交 function 的實作，不需提交 int main(){⋯}。